CLAIMS

WHAT IS CLAIMED IS:

1. A device, comprising:

a chirped Bragg grating, said grating having (a) a reflection bandwidth having a full-width at half maximum that is greater than 6 nm, and (b) a reflection delay ripple amplitude of less than ± 50 ps.

2. The device of claim 1, wherein said device has a dispersion, measured in reflection, whose magnitude is greater than 100 ps/nm.

3. The device according to claim 1, wherein said device has a dispersion, measured in reflection, whose magnitude is greater than 400 ps/nm.

4. The device of claim 1, wherein said device has a peak insertion loss, measured in transmission, of greater than 0.1 dB.

5. The device according to claim 1, wherein said device has a peak insertion loss, measured in transmission, of greater than 1 dB.

6. The device according to claim 1, wherein the device has a reflection bandwidth greater than 10 nm.

7. The device according to claim 1, wherein the device has a reflection bandwidth greater than 15 nm.

8. The device according to claim 1, wherein the device has a delay ripple amplitude A such that $|A| < 30$ ps.

9. The device according to claim 1, wherein the bandwidth of the device is greater than 25 nm.

10. The device according to claim 1, wherein the device has a high-frequency delay ripple amplitude A such that $|A| < 50$ ps.

11. The device according to claim 1, wherein the device has a high-frequency delay ripple amplitude A such that $|A| < 30$ ps.

12. A dispersion compensating device, having a dispersion magnitude greater than 100 ps/nm, comprising a circulator and a chirped Bragg grating having a bandwidth greater than 6 nm; where the optical signal to noise ratio needed to maintain a bit-error-rate at between 10^{-9} and 10^{-10} of a 10 Gbit/s optical fiber communications system, varies less than 3 dB as the wavelength of the transmitting laser is varied at less than 25 pm steps across the full bandwidth of the device.

13. The device according to claim 12, wherein the optical signal-to-noise ratio varies less than 2 dB.

14. The device according to claim 12, wherein the bandwidth of the device is greater than 10 nm.

15. An optical fiber for propagating light comprising

a core;

a cladding; and

a chirped Bragg grating comprising

refractive index perturbations formed within the waveguide, said grating having a bandwidth in reflection having a full-width at half maximum greater than 6 nm;

a reflection delay ripple amplitude, determined by subtracting a sixth-order polynomial from the reflection delay curve measured by the modulation-phase shift method with a frequency of 200 MHz, less than ±50 ps;

a dispersion, measured in reflection, of magnitude greater than 100 ps/nm; and

a peak insertion loss, measured in transmission, greater than 1 dB.

16. An optical device, comprising:

a waveguide equipped with a chirped Bragg grating, said grating comprising refractive index perturbations formed within the waveguide and having a bandwidth in reflection having a full-width at half maximum greater than 6 nm; and

a reflection delay ripple amplitude which, when determined by subtracting a sixth-order polynomial from the reflection delay curve measured by the modulation-phase shift method using a frequency of 200 MHz, is less than k;

wherein $|k| < 50$ ps.

17. An optical communications system that uses the device of claim 1.

18. An optical communications system that uses the device of claim 12.

19. An optical communications system that uses the optical fiber of claim 15.

20. An optical communications system that uses the device of claim 16.